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EXAMINER	
NORTON, JENNIFER L	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/780,204	Applicant(s) SHAPIRO ET AL.	
	Examiner Jennifer L. Norton	Art Unit 2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _26 January 2009_.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-17_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-17_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _17 February 2004_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1. The following is a **Final Office Action** in response to the Amendment received on 26 January 2009. Claims 1-17 are pending in this application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-5, 7-10, 12, 13 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,901,300 (hereinafter Blevins) in view of U.S. Patent No. 4,823,299 (hereinafter Chang) in view of further of U.S. Patent No. 5,367,475 (hereinafter White).

4. As per claim 1, Blevins teaches to a method for controlling a controlled operation by determining a lag in data from at least one actual variable signal, comprising:

processing the data using time-series analysis with a filter to produce filtered data with reduced noise content (col. 4, lines 29-34, col. 10, lines 13-16 and Fig. 3, element 60);

arranging the filtered data in matrices with one column for each variable signal (col. 9, lines 55-58 and Fig. 3, element 53);

processing data with a variable signal estimator to output a variable signal function for each variable signal that defines each variable signal in terms of its mathematical dependencies on all of the variable signals (col. 10, lines 6-9 and 43-48);

processing each variable signal function with a criterial function to provide an optimal lag value for each variable signal (col. 9, lines 66-67, col. 10, lines 1-3, col. 12, lines 65-67 and col. 13, lines 1-10);

processing data with a lag estimator to output a lag function for each lag, each lag function defining each lag in terms of its mathematical dependency on all of the variable signals (col. 13, lines 30-38);

determining the goodness of fit of each lag function based on the most recent filtered data (col. 16, lines 56-67);

storing at least one lag function based on its goodness of fit (col. 17, lines 16-17); and

discarding at least one lag function based on its goodness of fit (col. 17, lines 4-16).

Blevins does not expressly teach measured variable signals, shifting the columns of the matrices to produce a plurality of different shifted matrices, each shifted matrix having a given value for the lag in data for each measured variable signal, processing each shifted matrix with a point calculation algorithm to produce a point for each column in each shifted matrix and measuring any goodness of fit characteristic.

White teaches to measured variable signals (col. 5, lines 19-22 and col. 8, lines 11-16; i.e. path response), shifting the columns of the matrices to produce a plurality of different shifted matrices, each shifted matrix having a given value for the lag in data for each measured variable signal (col. 6, lines 15-67 and col. 7, lines 21-61), processing each shifted matrix with a point calculation algorithm to produce a point for each column in each shifted matrix (col. 7, lines 11-24 and col. 8, lines 29-32 and 37-39) and measuring any goodness of fit characteristic (col. 8, lines 63-67 and col. 10, lines 3-6).

Therefore it would have been obvious to a person of ordinary skill in the art at the time of the applicant's invention to modify the teaching of Blevins to include measured variable signals, shifting the columns of the matrices to produce a plurality of different shifted matrices, each shifted matrix having a given value for the lag in data for each measured variable signal, processing each shifted matrix with a point calculation algorithm to produce a point for each column in each shifted matrix and measuring any goodness of fit characteristic to advantageously achieve highly accurate estimation (col. 1, lines 52-53) with minimum complexity and cost (col. 1, lines 52-54).

5. As per claim 2, Blevins as set forth above teaches the filter is a 1-D filter (col. 10, lines 17-19).

6. As per claim 3, Blevins as set forth above teaches the filter is a time series approximator (col. 10, lines 17-19).

7. As per claim 4, Blevins as set forth above teaches the filter is an n-D filter (col. 10, lines 17-19).

8. As per claim 5, Blevins as set forth above teaches the variable signal estimator is a neural network (col. 6, lines 44-49).

9. As per claim 7, Blevins does not expressly teach the point calculation algorithm averages the values of each column in a given matrix to produce a point for each column in each shifted matrix.

White teaches to the point calculation algorithm averages the values of each column in a given matrix to produce a point for each column in each shifted matrix (col. 5, lines 20-23, col. 7, lines 11-24 and col. 8, lines 29-32 and 37-39).

Therefore it would have been obvious to a person of ordinary skill in the art at the time of the applicant's invention to modify the teaching of Blevins to include a point calculation algorithm which averages the values of each column in a given matrix to produce a point for each column in each shifted matrix to produce real time solutions to input signals (col. 2, lines 26-30).

10. As per claim 8, Blevins as set forth above teaches the lag estimator is a neural network (col. 6, lines 44-49).

11. As per claim 9, Blevins teaches a method for controlling a controlled operation by determining a lag in data from at least one variable signal, comprising:

arranging the data in matrices with one column for each variable signal (col. 9, lines 55-58 and Fig. 3, element 53);

processing data with a variable signal estimator to output a variable signal function for each variable signal that defines each variable signal in terms of its mathematical dependencies on all of the variable signals (col. 10, lines 6-9 and 43-48); and

processing each variable signal function with a criterial function to provide an optimal lag value for each variable signal (col. 9, lines 66-67, col. 10, lines 1-3, col. 12, lines 65-67 and col. 13, lines 1-10).

Blevins does not expressly teach measured variable signals, shifting the columns of the matrices to produce a plurality of different shifted matrices, each shifted matrix having a given value for the lag in data for each measured variable signal.

White teaches to measured variable signals (col. 5, lines 19-22 and col. 8, lines 11-16; i.e. path response), shifting the columns of the matrices to produce a plurality of

different shifted matrices, each shifted matrix having a given value for the lag in data for each measured variable signal (col. 6, lines 15-67 and col. 7, lines 21-61).

Therefore it would have been obvious to a person of ordinary skill in the art at the time of the applicant's invention to modify the teaching of Blevins to include measured variable signals, shifting the columns of the matrices to produce a plurality of different shifted matrices, each shifted matrix having a given value for the lag in data for each measured variable signal to advantageously achieve highly accurate estimation (col. 1, lines 52-53) with minimum complexity and cost (col. 1, lines 52-54).

12. As per claim 10, Blevins as set forth above teaches the variable signal estimator is a neural network (col. 6, lines 44-49).

13. As per claim 12, Blevins teaches a method for controlling a controlled operation by determining the lag in data from at least one variable signal, comprising:

arranging the data in matrices with one column for each measured variable signal (col. 9, lines 55-58 and Fig. 3, element 53);

processing data with a variable signal estimator to output a variable signal function for each variable signal that defines each measured variable signal in terms of its mathematical dependencies on all of the measured variable signals (col. 10, lines 6-9 and 43-48);

processing each measured variable signal function with a criterial function to provide an optimal lag value for each variable signal (col. 9, lines 66-67, col. 10, lines 1-3, col. 12, lines 65-67 and col. 13, lines 1-10); and

processing data with a lag estimator to output a lag function for each lag, each lag function defining each lag in terms of its mathematical dependency on all of the variable signals (col. 13, lines 30-38).

Blevins does not expressly teach to measured variable signal, a given stream of values of K process variables is arranged in columns, a snapshot of end time scans is taken resulting in an end by K matrix, shifting the columns of the matrices by a predetermined value to produce a plurality of different shifted matrices, each shifted matrix having a given value for the lag in data for each measured variable signal; and processing each shifted matrix with a point calculation algorithm to produce a point for each column in each shifted matrix.

White teaches to measured variable signal (col. 5, lines 19-22 and col. 8, lines 11-16; i.e. path response), a given stream of values of K process variables is arranged in columns, a snapshot of end time scans is taken resulting in an end by K matrix (col. 6, lines 15-67), shifting the columns of the matrices by a predetermined value to produce a plurality of different shifted matrices (col. 7, lines 7-11), each shifted matrix having a given value for the lag in data for each measured variable signal (col. 6, lines 15-67 and col. 7, lines 21-61); and processing each shifted matrix with a point

calculation algorithm to produce a point for each column in each shifted matrix (col. 7, lines 11-24 and col. 8, lines 29-32 and 37-39).

Therefore it would have been obvious to a person of ordinary skill in the art at the time of the applicant's invention to modify the teaching of Blevins to include measured variable signal, a given stream of values of K process variables is arranged in columns, a snapshot of end time scans is taken resulting in an end by K matrix, shifting the columns of the matrices by a predetermined value to produce a plurality of different shifted matrices, each shifted matrix having a given value for the lag in data for each measured variable signal; and processing each shifted matrix with a point calculation algorithm to produce a point for each column in each shifted matrix to advantageously achieve highly accurate estimation (col. 1, lines 52-53) with minimum complexity and cost (col. 1, lines 52-54).

14. As per claim 13, Blevins as set forth above teaches the variable signal estimator is a neural network (col. 6, lines 44-49).

15. As per claim 15, Blevins does not expressly teach the point calculation algorithm averages the values of each column in a given matrix to produce a point for each column in each shifted matrix.

White teaches the point calculation algorithm averages the values of each column in a given matrix to produce a point for each column in each shifted matrix (col. 5, lines 20-23, col. 7, lines 11-24 and col. 8, lines 29-32 and 37-39).

Therefore it would have been obvious to a person of ordinary skill in the art at the time of the applicant's invention to modify the teaching of Blevins to include the point calculation algorithm averages the values of each column in a given matrix to produce a point for each column in each shifted matrix to produce a point for each column in each shifted matrix to advantageously achieve highly accurate estimation (col. 1, lines 52-53) with minimum complexity and cost (col. 1, lines 52-54).

16. As per claim 16, Blevins as set forth above teaches to the lag estimator is a neural network (col. 6, lines 44-49).

17. As per claim 17, Blevins teaches a method for determining a lag in data from a variable signal, comprising:

filtering the data (col. 4, lines 29-34, col. 10, lines 13-16 and Fig. 3, element 60);

arranging the data into matrices, including one column for each variable signal (col. 9, lines 55-58 and Fig. 3, element 53);

processing each variable signal function with a criterial function to produce an optimal lag value for each variable signal (col. 9, lines 66-67, col. 10, lines 1-3, col. 12, lines 65-67 and col. 13, lines 1-10);

processing each lag value and each optimal lag value with lag estimator to output lag function for each lag (col. 13, lines 30-38); and

determine its goodness of fit for each lag function (col. 17, lines 4-16).

Blevins does not expressly teach measured variable signals, producing a plurality of shifted matrices with a value for the lag data for each measured variable signal; processing each shifted matrix to output a variable signal function for each measured variable signal; and processing each shifted matrix with a point calculation algorithm to produce a lag value for each column in each shifted matrix.

White teaches to measured variable signals (col. 5, lines 19-22 and col. 8, lines 11-16; i.e. path response), producing a plurality of shifted matrices with a value for the lag data for each measured variable signal (col. 6, lines 15-67 and col. 7, lines 21-61); processing each shifted matrix to output a variable signal function for each measured variable signal (col. 6, lines 15-67 and col. 7, lines 21-61); and processing each shifted matrix with a point calculation algorithm to produce a lag value for each column in each shifted matrix (col. 7, lines 11-24 and col. 8, lines 29-32 and 37-39).

Therefore it would have been obvious to a person of ordinary skill in the art at the time of the applicant's invention to modify the teaching of Blevins to include measured variable signals, producing a plurality of shifted matrices with a value for the lag data for measured each variable signal; processing each shifted matrix to output a variable signal function for each measured variable signal; and processing each shifted

matrix with a point calculation algorithm to produce a lag value for each column in each shifted matrix to produce a point for each column in each shifted matrix and measuring any goodness of fit characteristic to advantageously achieve highly accurate estimation (col. 1, lines 52-53) with minimum complexity and cost (col. 1, lines 52-54).

18. Claim 6, 11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blevins in view of White in further view of U.S. Patent 4,349,869 (hereinafter Prett).

19. As per claim 6, Blevins and Chang do not expressly teach the criterial function utilizes optimization methods to provide an optimal lag value for each variable signal.

Prett teaches to a criterial function utilizes optimization methods to provide an optimal value for each variable signal (col. 8, lines 2-7).

Therefore it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of Blevins in view of Chang to include a criterial function utilizing optimization methods to move the controlled variable towards its optimum setpoint and to predict where the process is going, and to compensate in the present moves to control any further problems (col. 3, lines 5-11).

20. As per claim 11, Blevins and Chang do not expressly teach the criterial function utilizes optimization methods to provide an optimal lag value for each measured variable signal.

Prett teaches to the criterial function utilizes optimization methods to provide an optimal lag value for each measured variable signal (col. 8, lines 2-7).

Therefore it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of Blevins in view of Chang to include the criterial function utilizes optimization methods to provide an optimal lag value for each measured variable signal to move the controlled variable towards its optimum setpoint and to predict where the process is going, and to compensate in the present moves to control any further problems (col. 3, lines 5-11).

21. As per claim 14, Blevins and Chang do not expressly teach the criterial function utilizes optimization methods to provide an optimal lag value for each measured variable signal.

Prett teaches to the criterial function utilizes optimization methods to provide an optimal lag value for each measured variable signal (col. 8, lines 2-7).

Therefore it would have been obvious to a person of ordinary skill in the art at

the time of applicant's invention to modify the teaching of Blevins in view of Chang to include the criterial function utilizes optimization methods to provide an optimal lag value for each measured variable signal to move the controlled variable towards its optimum setpoint and to predict where the process is going, and to compensate in the present moves to control any further problems (col. 3, lines 5-11).

Response to Arguments

22. Applicant's arguments see Remarks pgs. 8-9, filed 26 January 2009 with respect to claims 1-17 under 35 U.S.C. 103 (a) have been fully considered but they are not persuasive.

23. In regards to Applicant's argument that White does not teach, "shifting the columns of the matrices to produce a plurality of different shifted matrices, each shifted matrix having a given value for the lag in data for each measured variable signal" (page 8, paragraph 3), the Examiner recognizes the Applicant has not accounted for the combination of Blevins and White under 35 U.S.C 103(a) for this limitation as set forth in the Non-Final Office Action, mailed on 24 July 2008.

Furthermore, with respect to the Applicant's arguments that White does not teach "measured data in shifted matrices"; the Examiner respectfully disagrees.

> White teaches (col. 4, lines 45-67 and col. 5, lines 1-6) "A variety of signals and signal sources fit this categorization. One exemplary

application would be to deconvolve signals received from **sensors used to collect information about vehicles such as trains traveling along a railroad or heavy wheeled vehicles traversing roads.** Other exemplary processes include events such as, but not limited to, acoustic detection of periodic signals from machinery (e.g., a ship propulsion system) where identification of the driving signal (engine type) and propagation path are equally important. In any case, the invention is used to analyze process or event which generates the sensor signals to estimate one or more source characteristics or parameters. For the vehicle example above, such estimates would be direction of movement, vehicle length, weight distribution, and speed.

One or more application-specific sensors or detectors are used to receive source signals, as altered by any intervening propagation path aberrations, or sensor dynamics, **and provide an output indicative of the received signal.** In the vehicular example **a motion sensitive instrument such as a tiltmeter** or similar device is used adjacent to or within the road bed to generate signals when the vehicle passes nearby. The tiltmeter generates output information indicating changes in the slant or micro-topography of the local terrain in response to the movement over or change in weight applied to the roadbed. This generates signals indicative of changes along an X axial direction and a Y axial direction."

(col. 5, lines 16-23) "In the present example of a vehicular train or convoy, the support points of the cars in the overall vehicular train each provide the sensor, or sensors, with a sample signal that acts as one impulse in a series of impulses to form a pulse sequence. The sensor signal samples can be treated as an M-dimensional pulse sequence which can be modeled by a signal vector s.sup.o which equals

[s.sup.o.sub.0, s.sup.o.sub.1, s.sup.o.sub.2, . . . , .sup.o.sub.M-1].sup.T."

(col. 5, lines 34-42) "The impulse sequence model signal vector is a function of the velocity of the sensed vehicle which relates the spatial separation of the impulses with a sensed time separation of the individual pulses within the pulse sequence. **The sensor output along any axis is a compilation of sample signal vector components, s.sup.o.sub.0, s.sup.o.sub.1, s.sup.o.sub.2, . . . , s.sup.o.sub.m-1, received up to that time,** adjusted by a coefficient which represents the impulse response of the signal transfer path."

(col. 6, lines 15-67) "The signal matrix would be expressed as a series of matrix columns that comprise vertically, time-displaced replicas of the sample vector s.sup.o, as shown above. As illustrated by **the x.sup.o outputs from before, the successive columns of the matrix will contain shifted versions of the original input sample vector signal**. Therefore, the elements of the sample matrix [S.sup.o] become:

$$S^{o}_{pn} = \begin{cases} 0 \text{ if } n > p \text{ or } p > M-1+n \\ s^{o}_{p-n} \text{ otherwise} \end{cases}$$

where p≦P and P is the total number of samples received on each axis, or the maximum or highest value if the different axis values are unequal, such that:

$$P = M + N - 1,$$

and where N is the number of samples used to model the signal-propagation filters (path). Capitalization (even without brackets) is sometimes used herein to indicate a matrix; lower case indicates a vector or scalar. The number of samples is determined by the specific application for the signal deconvolution based on sensor dynamics, memory, noise, etc.; P is determined independently from the present invention. The form of [S.sup.o] is expressed as:

$$\begin{bmatrix} s^0_0 & 0 & 0 & 0 & \cdots & 0 & 0 \\ s^0_1 & s^0_0 & 0 & 0 & \cdots & 0 & 0 \\ s^0_2 & s^0_1 & s^0_0 & 0 & \cdots & 0 & 0 \\ \vdots & \vdots & \vdots & \vdots & \ddots & 0 & 0 \\ \vdots & \vdots & \vdots & \vdots & & 0 & 0 \\ \vdots & \vdots & \vdots & \vdots & & 0 & 0 \\ s^0_{M-2} & s^0_{M-3} & s^0_{M-4} & s^0_{M-5} & \cdots & s^0_0 & 0 \\ s^0_{M-1} & s^0_{M-2} & s^0_{M-3} & s^0_{M-4} & \cdots & s^0_1 & s^0_0 \\ \vdots & \vdots & \vdots & \vdots & \ddots & \vdots & \vdots \\ s^0_{N-1} & s^0_{N-2} & s^0_{N-3} & s^0_{N-4} & \cdots & s^0_{N-M+1} & s^0_{N-M} \\ 0 & s^0_{N-1} & s^0_{N-2} & s^0_{N-3} & \cdots & s^0_{N-M+2} & s^0_{N-M+1} \\ 0 & 0 & s^0_{N-1} & s^0_{N-2} & \cdots & s^0_{N-M+3} & s^0_{N-M+2} \\ \vdots & \vdots & \vdots & \vdots & \ddots & \vdots & \vdots \\ 0 & 0 & 0 & 0 & \cdots & s^0_{N-1} & s^0_{N-2} \\ 0 & 0 & 0 & 0 & \cdots & 0 & s^0_{N-1} \end{bmatrix}$$ "

(col. 7, lines 21-61) "**For computational convenience one can also define a pair of (P.times.M)-dimensional matrices [C.sup.0] and [D.sup.o] comprising the series of path vectors that arise from the time delayed effects of multiple signal paths.** As in the case of the sample signal matrix [S.sup.o], the columns of the [C.sup.o] and [D.sup.o] matrices are vertically displaced versions of the c.sup.o and d.sup.o vectors with trailing and leading zeroes added for completeness. The elements of these matrices are expressed as:

$$C^0_{pm} = \begin{cases} 0 \text{ if } m > p \text{ or } p > N-1+m \\ c^0_{p-m} \text{ otherwise} \end{cases}$$

and

$$D^0_{pm} = \begin{cases} 0 \text{ if } m > p \text{ or } p > N-1+m \\ d^0_{p-m} \text{ otherwise.} \end{cases}$$

The signals generated at the two sensor outputs can then be expressed as:

$$x^o = [S^o]c^o = [C^o]s^o,$$

and

$$y^o = [S^o]d^o = [D^o]s^o;$$

where

$$x^o = [x^o_0, x^o_1, x^o_2, \ldots, x^o_{P-1}]^T,$$

and

$$y^o = [y^o_0, y^o_1, y^o_2, \ldots, y^o_{P-1}]^T,$$

either form of which can be used to derive a maximum likelihood deconvolved source signal."

(col. 8, lines 11-13) "**A sample or source signal s.sup.o can be estimated from a given set of input data** signals or **measurements** x.sup.o and y.sup.o."

In summary, White teaches to sensors used to output measured information about the system in which a sample or source signal is estimated from the input measurements of the sensors to determine a lag in measured data by producing a plurality of different shifted matrices, each shifted matrix has a given value for the lag in the data measured variable signal. Hence, Blevins in view of White teaches to Applicant's claimed limitation of "shifting the columns of the matrices to produce a plurality of different shifted matrices, *each shifted matrix having a given value for the* ***lag*** *in data for each measured variable signal*".

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer L. Norton whose telephone number is (571)272-3694. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on 571-272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For

more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Albert DeCady/
Supervisory Patent Examiner
Art Unit 2121